

MEMO  
Department

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TO: Dan Neal & John Hodgson

DATE: June 29, 1972

FROM: Ron Devitt

SUBJECT: Wapato STP

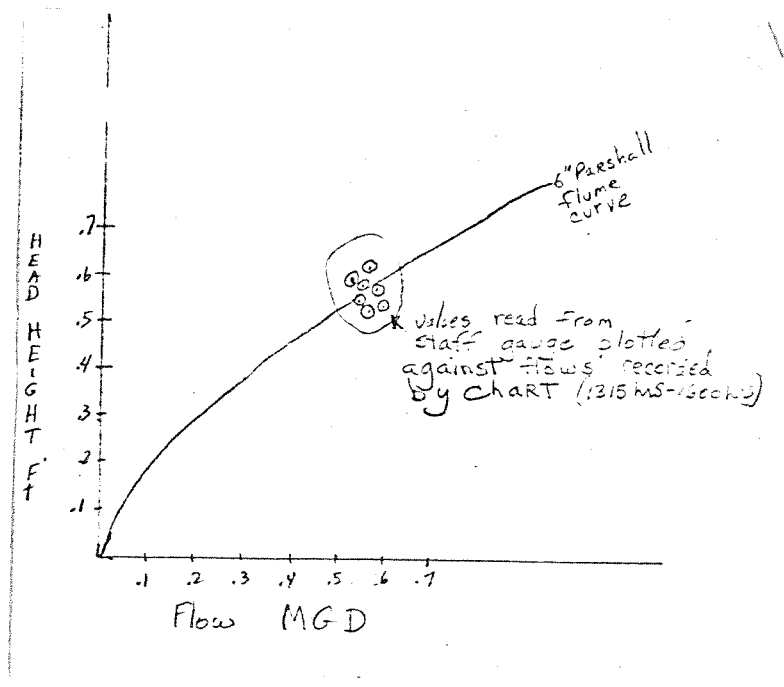
On Tuesday, June 13, 1972, I conducted an efficiency survey on Wapato STP.

Four Composite samples were collected:

1. Influent at Parshall flume
2. Primary clarifier effluent
3. Combined trickling filter effluents
4. Secondary clarifier effluent

These samples were proportioned to flow from the chart inside the lab; but at 1300 it was noticed that there was a discrepancy between Parshall flume head height and the chart reading. The proportional chlorination had been adapted to the influent recorder the previous day by the instrument factory representative, so I assumed that it would be functioning properly.

Comparing high flow to low flow, the chart did increase as the influent visibly increased, but the head height values obtained in the afternoon versus the recorded flow showed variation of  $\pm .1$  MGD from actual flow.



The average of sixteen chart readings throughout the day was .677 MGD. The integrator reading was 182,000 for 8 hours or .546 MGD. The average of six head height readings of the Parshall flume from 1300 hours to 1600 hours was .57 feet or .55 MGD. The actual total flow is not known.

It is doubtful that proportioning chlorine to the influent flow is as effective in disinfection as proportioning to effluent flow. The flow through the chlorine chamber is not a direct function of the flow of the influent, because of the time delay caused by detention time throughout the system.

Another disadvantage is, if the comminutor overloads and stops (as it did at 1310 hours) the flow device exceeds actual flow and more chlorine is added than necessary.

At 1615 hours, quantities of crankcase like oil were observed in the clarifier and influent channel. One auto repair shop and the five service stations on the sewer system were visited and questioned, but I was unable to locate the source. Residual amounts of oil were still entering the plant at 1745. Estimated oil to the plant was 5 - 10 gallons.

RCD:bj

cc: Ron Pine  
Lloyd Taylor  
Glenn Phillips

## STP SURVEY REPORT FORM

## (EFFICIENCY STUDY)

City Wapato Plant Type T. Filters Population 2300 Design 5,000  
 Served Capacity  
 Receiving Water Yakima River via Ditch Engineer Dan Neal  
 Date 6/13/72 Survey Period 0830-1600 Survey Personnel Ron Devitt  
 Comp. Sampling Frequency 1/2 Hour Weather Conditions Sunny  
 (last 48 hours)  
 Sampling Alequot \* Recorded flow x 2 ml/30 min.

## PLANT OPERATION

\* .546 integrator reading  
 Total Flow .677 average chart reading How Measured 6" Parshall flume  
 Max. (Flow) \_\_\_\_\_ Time of Max. 1030-1130 Min. \_\_\_\_\_ Time of Min. 0830-0900  
 Pre Cl<sub>2</sub> ----- #/day Post Cl<sub>2</sub> \_\_\_\_\_ to flow #/day  
 50# @ .75 MGD  
 44# @ .65 MGD  
 35# @ .53 MGD  
 22# @ .425 MGD  
 \* Flow recorder off.

## FIELD RESULTS

16<sup>†</sup> Determinations

## Influent

## Effluent

	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C	23.5	20.9	21.8	21.8	21.6	19.1	20.4	20.3
Conductivity (umhos/cm)	7.7	7.3	7.4	7.4	7.3	7.0	7.1	7.0
Settleable Solids	18.0	4.0	8.3	7.0	.1	Nil	Nil	Nil

† Only 7 settleable solids

SEE ATTACHED

## LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent	Effluent	% Reduction
5-Day BOD			
COD			
T.S.			
T.N.V.S.			
T.S.S.			
N.V.S.S.			
pH			
Conductivity			
Turbidity			

gc two

apato STP

# BACTERIOLOGICAL RESULTS

Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> added to sample in bottle After min.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)		15 Sec.	3 Min.
		total	fecal	Cl Residual ppm	Cl Residual (after 5 min)
	0845	22,500	< 20	.4	> 1.0
	0945	400		.5	> 1.0
	1145	400		.5	> 1.0
	1315	400	< 20	.5	> 1.0

erator's Name Dennis Moorefield

Phone # 879-7697

ments: Lou Stevens on vacation.

	16 Samples 0830-1600 6 Settleable Solids North T. Filter Effluent				16 Samples 0830-1600 6 Settleable Solids South T. Filter Effluent				5 Samples 1400-1601 1 Settleable Solid Primary Clarifier Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp.	21.4	18.6	19.9	19.9	21.4	18.9	20.4	20.6	21.6	21.1	21.3	21.4
pH	7.3	7.1	7.2	7.2	7.5	7.3	7.3	7.3	7.3	7.1	7.3	7.3
SS	.9	.3	.5	.4	1.0	.2	.5	.3	----	----	<.1	----

Temp. = °C  
SS = ml/l (Settleable)

# Mapato STP

Influent	Primary Clarifier Effluent	Primary Clarifier Reduction	Trickling Filters Effluent	Trickling Filters Reduction	Secondary Clarifier Effluent	Secondary Clarifier Reduction	Overall Efficiency
BOD 151	68	55 %	38	44 %	3	92 %	98 %
COD 438	253	42 %	146	42 %	84	42 %	80 %
T.S. 516	374	28 %	370	1 %	329	11 %	36 %
T.N.V.S. 260	155	40 %	204	None	186	9 %	28 %
T.S.S. 227	96	58 %	95	1 %	36	62 %	84 %
N.V.S.S. 50	23	54 %	23	None	7	70 %	86 %
pH 7.2	7.2	---	7.1	---	7.2	--	--
Cond. 499	428	---	380	---	387	--	--
Turb. 65	45	---	30	---	20	--	--

## WATER QUALITY LABORATORY

LAB FILES

## DATA SUMMARY

Source WAPATO STP

Collected By R. DeWitt

Date Collected 6-13

Goal, Pro./Obj. 3.2.21

[illegible]

Note: All results are in PPM unless otherwise specified. ND is "None Detected"  
Convert those marked with a \* to PPB (PPM X 10<sup>3</sup>) prior to entry into STORET

Summary By Stephen B. Roll Date 6-28-72